

The Juster Purchase Probability Scale: A Bibliography

Mike Brennan

Estimating demand is an important concern of marketers, and business managers in general, because such estimates are an integral requirement for both strategic and tactical planning decisions. One approach that has shown promising results involves the use of the Juster Purchase Probability Scale, an 11-point scale that has verbal (e.g., “almost sure”), numerical (e.g., “9”) and probability (e.g., “9 in 10”) descriptors. This scale has been shown to consistently outperform other types of scale, and has been applied to a wide range of applications, such as estimating both purchase rates and purchase levels, estimating relative market share, assessing advertising copy effectiveness, predicting voting behaviour, and constructing demand curves. However, while the number of applications of the scale has expanded, the research supporting these applications is quite limited, and much of it is unpublished. There is a need for ongoing development and replication, and to do this efficiently, it is important to know what has been done already. The purpose of this bibliography is to list all known articles and studies that have examined or applied the Juster Scale, including conference papers and theses.

It is almost certain that this bibliography is incomplete. But the great advantage of an online publication is that it can be constantly updated, and this will be done. Readers are encouraged to contribute to this process by informing the author of any relevant material not currently listed.

The following bibliography has three sections: Journal Articles, Conference Papers, and Theses.

Keywords: Juster Scale, Purchase Probability, Demand Estimation

Updated: 9/12/2004

Journal Articles

Adams FG (1964). Consumer attitudes, buying plans and purchasing of durable goods; A principal component, time series approach. *The review of Economics and Statistics*, 46, 4, 347-355.

Adams FG (1974). Commentary on McNeil: Federal programs to measure consumer purchase expectations. *Journal of Consumer Research*, 1 (December), 11-12.

Armstrong JS & Overton T (1971). Brief vs comprehensive descriptions in measuring intentions to purchase. *Journal of Marketing Research*, VIII (February), 114-117.

Armstrong JS, Morwitz VG & Kumar V (2000). Sales forecasts and existing consumer products and services: Do purchase intentions contribute to accuracy? Working Paper.

Axelrod JN (1968). Attitude measures that predict purchase. *Journal of Advertising Research*, 8 (No. 1), 3-17.

Bagozzi RP (1981). Attitudes, intentions and behaviour: A test of some key hypotheses. *Journal of personality and Social Psychology*, 41 (October), 607-627.

- Bemmaor AC (1995). Predicting behaviour from intention-to-buy measures: The parametric case. *Journal of Marketing Research*, XXXII (May), 176-191.
- Bird M & Ehrenberg ASC (1966). Intentions to buy and claimed brand usage. *Operational Research Quarterly*, 17,1,27-46.
- Brennan M, Hini D & Esslemont D (1994). Obtaining purchase probability data via telephone surveys: A preliminary test of two techniques. *Marketing Bulletin* 5, 64-70.
- Brennan M (1995). Constructing demand curves from purchase probability data: An application of the Juster Scale. *Marketing Bulletin*, 6, 51-58.
- Brennan M & Esslemont D (1994). The accuracy of the Juster scale for predicting purchase rates of branded fast moving consumer goods. *Marketing Bulletin*, 5, 47-52.
- Brennan M, Esslemont D & Hini D (1995). Obtaining purchase predictions via telephone interviews. *Journal of the Market Research Society*, 37, 3, 241-250.
- Brennan M, Chan J, Hini D & Esslemont D (1996). Improving the accuracy of recall data: A test of two procedures. *Marketing Bulletin*, 7, 20-29
- Brennan M, Esslemont D & UC (1995). Using the Juster Scale to estimate the demand-price relationship. *Asia-Australia Marketing Journal*, 3 (1), 27-38.
- Brennan M & Esslemont D (1994). The accuracy of the Juster Scale for predicting purchase rates of branded, fast-moving consumer goods. *Marketing Bulletin*, 5, 47-52.
- Byrnes JC (1964). Consumer intentions to buy. *Journal of Advertising Research*, 4, 3, 49-51.
- Byrnes JC (1964). *An Experiment in the measure of consumer intentions to purchase*. Proceedings of the business and economics statistics section, American Statistical Association. In Juster, F. T. (1966). *Consumer buying intentions and purchase probability*. National Bureau of Economic Research, New York: Columbia University Press.
- Clancy K & Garsen R (1970). Why some scales predict better. *Journal of Advertising Research*, 10 (5), 33-38.
- Clawson CJ (1971). How useful are 90 day purchase probabilities? *Journal of Marketing*, 35, 43-47.
- Dawes J (2002). Further evidence on the predictive accuracy of the verbal probability scale: The case of household bill payments in Australia. *Journal of Financial Services Marketing*, 6, 3, 281-289.
- Day D, Gan B, Gendall P, & Esslemont D (1991). Predicting purchase behaviour. *Marketing Bulletin*, 2, 18-30.
- Ferber R & Piskie RA (1965). Subjective probabilities and buying intentions. *The Review of Economics and Statistics*, 47, 322-325.

- Fishbein M & Ajzen I (1975). *Belief, Attitude, Belief and Behaviour*. Reading, MA:Addison-Wesley.
- Gabor A & Granger CWJ (1972) Ownership and acquisition of consumer durables: Report on the Nottingham consumer durables project. *European Journal of Marketing*, 6, 4, 234-248.
- Gan BC, Esslemont DHB & Gendall PJ (1986). *A test of the accuracy of the Juster Scale as a predictor of purchase behaviour*. Research report No 45. Market Research Centre, Massey University, Palmerston North, New Zealand.
- Garland R (2002). Estimating customer defection in personal retail banking. *International Journal of Bank Marketing*, 20, 7, 317-324.
- Gendall P, Esslemont D & Day D (1991). A comparison of two versions of the Juster Scale using self-completion questionnaires. *Journal of the Market Research Society*, 33, 3, 257-263.
- Gold B & Salkind W (1974). What do 'top box' scores measure? *Journal of Advertising Research*, 15 (April), 19-24.
- Gormley R (1974). A note on seven brand rating scales and subsequent purchases. *Journal of the Market Research Society*, 16 (July), 242-244.
- Granbois DH & Dummers JO (1975). Primary and Secondary validity of consumer purchase probabilities. *Journal of Consumer Research*, 1 (March), 31-38.
- Gruber A (1970) Purchase intent and purchase probability. *Journal of Advertising Research*, 10, 1, 23-27.
- Haley RI & Chase PB (1979). Testing thirteen attitude scales for agreement and brand discrimination. *Journal of Marketing*, 43 (Fall), 20-32.
- Hamilton-Gibbs D, Esslemont D & McGuinness D (1992). Predicting demand for frequently purchased items. *Marketing Bulletin*, 3, 18-23.
- Heald GI (1970). The relationship of intentions to buy consumer durables with levels of purchase. *British Journal of Marketing*, summer, 87-97.
- Hoek J & Gendall P (1993). A new method of predicting voting behaviour. *Journal of the Market Research Society*, 35, 4, 361-373.
- Hoek J, Gendall P & Healey B (2002). Web-based polling: An evaluation of survey modes. *Australasian Journal of Market Research*, 10, 2, 25-35.
- Isherwood BC & Pickering JF (1975). Factors influencing individual purchases of motor cars in Great Britain. *Oxford Bulletin of Economics and Statistics*, 37, 227-249.

- Jamieson LF & Bass FM (1989). Adjusting stated intention measures to predict trial purchase of new products: A comparison of models and methods. *Journal of Marketing Research*, 26, 336-345.
- Juster FT (1966). *Consumer Buying Intentions and Purchase Probability: An Experiment in Survey Design*. National Bureau of Economic Research, Columbia University Press,
- Juster FT & Wachtel P (1972a). Anticipatory and objective models of durable goods demand. *American Economic Review*, 72, 564-579.
- Juster FT & Wachtel P (1972b). Uncertainty, expectations, and durable goods demand models. In: Strumpel, B., Morgan, J. N. and Zahn, E. eds.) *Human Behavior in Economic Affairs*. Amsterdam: Elsevier Scientific Publishing Company.
- Juster FT (1960). Prediction and consumer buying intentions. *American Economic Review*, 50, 604 -22.
- Juster FT (1964). *Anticipation and Purchases: An Analysis of Consumer Behaviour*. National Bureau of Economic Research, Princeton University Press.
- Juster FT (1969). Consumer anticipations and models of durable goods demand. In Mincer J. *Economic Forecasts and Expectations*, National Bureau of Economic Research.
- Juster FT (1974). Commentary on McNeil: Federal programs to measure consumer purchase expectations. *Journal of Consumer Research*, 1 (December), 12-15.
- Kalwani MU & Silk AJ (1982). On the reliability and predictive validity of purchase intention measures. *Marketing Science*, 1 (3), summer, 243-286.
- Klein LR & Lansing JB (1955). Decisions to purchase consumer durable goods. *Journal of Marketing*, 20 (2), 109, 132.
- Kuehn AA. & Day RL (1964). Probabilistic models of consumer buying behaviour. *Journal of Marketing*, 28 (October), 27-31.
- McDonald H, Corkindale D & Sharp B (2003). Behavioural versus demographic predictors of early adoption: A critical analysis and comparative test. *Journal of Marketing Theory and Practice*, 11(1), 84-95.
- McNeil J (1974). Federal programs to measure consumer purchase expectations. *Journal of Consumer Research*, 1 (December), 1-10.
- McNeil J (1974). Federal programs to measure consumer purchase expectations: Reply to Juster's commentary. *Journal of Consumer Research*, 1 (December), 67.
- Miller E (1985). *The Perceived Career-related Education Needs of Agribusiness Employees in New Zealand*. Unpublished research report, Massey University, Palmerston North, New Zealand.

- Morwitz VG (1997). Why consumers don't always accurately predict their own future behaviour. *Marketing Letters*, 8 (1), 57-50.
- Morwitz VG, Johnson E & Schmittlein D (1993). Does measuring intent change behaviour? *Journal of Consumer Research*, 20 (June), 46-61.
- Morrison DG (1979). Purchase intentions and purchase behaviour. *Journal of Marketing*, 43 (Spring), 65-74.
- Mullet GM & Karson MJ (1985). Analysis of purchase intent scales weighted by probability of actual purchase. *Journal of Marketing*, 22, 93-96.
- Murray JA (1969). Canadian consumer expectational data: an evaluation. *Journal of Marketing Research*, 6, 107-113.
- Parackal M & Brennan M (1998). Obtaining purchase probabilities via a web based survey: The Juster Scale and the Verbal Probability Scale. *Marketing Bulletin*, 9, 67-75.
- Parackal M & Brennan M (1999). Obtaining purchase probabilities via a web based survey: Some corrections! *Marketing Bulletin*, 10, 93-101.
- Penny JC, Hunt IM & Twyman WA (1972). Product testing methodology in relation to marketing problems. *Journal of the Market Research Society*, 14 (January), 1-29.
- Pickering JF & Isherwood BC (1974). Purchase probabilities and consumer durable buying behaviour. *Journal of the Market Research Society*, 16, 3, 203-226.
- Pickering JF & Isherwood BC (1975). Determinants of expenditure on consumer durables. *Journal of Royal Statistical Society, A*, 138, 4, 504-530.
- Pickering JF (1975). Verbal explanations of consumer durable purchase decisions. *Journal of the Market Research Society*, 17, 107-113.
- Pickering JF & Greatorex M (1980). Evaluations of individual consumer durables: differences between owners and non-owners and buyers and non-buyers. *Journal of the Market Research Society*, 22 (2), 97-141.
- Placek CH & Ross I (1979). Propensity to buy ratings. *Journal of Advertising Research*, 19 (December), 43-47.
- Reibstein DJ (1978). The prediction of individual probabilities of brand choice. *Journal of Consumer Research*, 5 (December). 163-168.
- Riquier C, Luxton S & Sharp B (1996). Probabilistic segmentation using CHAID and the Verbal Probability Scale," *New Zealand Journal of Business*, 18 (2), 27-41.
- Rothman J (1964). Formulation of an index of propensity to buy. *Journal of Marketing Research* (May), 21-25.
- Seymour P, Brennan M & Esslemont D (1994). Predicting purchase quantities: Further investigation of the Juster Scale. *Marketing Bulletin*, 5, 21-36.

- Smith S, Parker EB & Davenport J (1963). Advertising readership and buying plans. *Journal of Advertising Research*, 3 (January), 25-29.
- Spagna GJ (1984). Questionnaires: Which approach do you use? *Journal of Advertising Research*, 24 (No. 1, February/March), 67-70.
- Stapel J (1968). Predictive attitudes. In Adler L & Crespi I. *Attitude Research on the Rocks*. American Marketing Association, 96-115.
- Tauber EM (1975). Predictive validity in consumer research. *Journal of Advertising Research*, 15 (October), 59-64.
- Taylor JW, Houlihan JJ & Gabriel AC (1975). The purchase intention question in new product development. *Journal of Marketing*, 39 (January), 90-92.
- Tellis GJ (1988). The price elasticity of selective demand: A meta-analysis of econometric models of sales. *Journal of Marketing Research*, 25, 4, 331-341.
- Theil H & Kosobud RF (1968). How informative are consumer buying intentions surveys? *Review of Economics and Statistics*, 50, 50-59.
- Tobin J (1959). On the predictive value of consumer intentions & attitudes. *The Review of Economics and Statistics*, 61, 1, 1-11.
- Twynman WA (1973). Designing advertising research for marketing decisions. *Journal of the Market Research Society*, 15 (April), 77-100.
- Urban GL, Weinberg BD & Hauser JR (1996). Premarket forecasting of really new products. *Journal of Marketing*, 60 (January), 47-60.
- Urban GL, Hauser JR & Roberts JH (1990). Prelaunch forecasting of new automobiles: Models and implementations. *Management Science*, 36 (April), 401-421.
- Warshaw PR (1980). Predicting purchase and other behaviours from general and contextually specific intentions. *Journal of Marketing Research*, XVII (February), 26-33.
- Warshaw PR (1980b). A new model for predicting behavioural intentions: An alternative to Fishbein. *Journal of Marketing Research*, 17 (May), 153-172.
- Wells WD (1961). The influence of yeasaying response style. *Journal of Marketing Research*, (June), 1-2.
- Wells WD (1961). Measuring readiness to buy. *Harvard Business Review*, 39 (July-August), 81-87.
- Worcester RM & Burns TR (1975). A statistical examination of the relative precision of verbal scales. *Journal of the Market Research Society*, 17 (3), 181-197.
- Wright M (2002). Two methods for estimating category statistics – Which is better. *Marketing Bulletin*, 13, Research Note 2, 1- 13.

Wright M, Sharp A & Sharp B (2002). Market statistics for the Dirichlet model: Using the Juster scale to replace panel data. *International Journal of Research in Marketing*, 19, 81-90.

Conference papers

Brennan M (2004). *Price-order effects in survey based Juster Scale ratings*.

Paper presented at the ANZMAC 2004 Conference, December 1-3, Wellington, 2004.

Brennan M (2004). *Obtaining accurate purchase predictions for innovative products*. Paper presented at the ANZMAC 2004 Conference, December 1-3, Wellington, 2004.

Brennan M (2004). *The Juster Purchase Probability Scale: Developments and Issues*. Paper presented at the 24th International Symposium on Forecasting, Sydney, 4-7 July, 2004.

Brennan M (2004). *Using the Juster Scale to construct demand curves*. Paper presented at the 24th International Symposium on Forecasting, Sydney, 4-7 July, 2004.

Brennan M, Chan J, Hini D & Esslemont D (1995). *Improving the accuracy of recall: A test of two procedures*. Paper presented at the New Zealand Marketing Educator's Conference, Wellington, November 26-29.

Brennan M & Esslemont D (1995). *The Juster Purchase Probability Scale: A Review of Recent Developments and Applications*. Paper presented to the 1995 INFORMS Marketing Science Conference, Sydney, July 2-5.

Brennan M, Esslemont D & Hini D (1994). *Obtaining purchase predictions via telephone interviews*. Paper presented at the Australian Marketing Conference, Adelaide, September 25-26.

Brennan M, Esslemont D & Hini D (1995). *A test of three methods for estimating levels of purchase*. In: Proceedings of the Seventh Bi-annual World Marketing Congress, Melbourne, July 6-10, 95-101

Brennan M, Esslemont D & U C (1992). *A comparison of two methods for predicting purchase rates and purchase levels using the Juster Scale*. Paper presented to the ANZAM Conference, Western Sydney, December 6-10.

Brennan M & Hini D (1995). *A test of two procedures for improving the accuracy of purchase predictions*. Paper presented at the New Zealand Marketing Educator's Conference, Wellington, November 26-29.

Brennan M. & Hini D (1997). *The Verbal Probability Scale: A test of two procedures for improving the accuracy of purchase predictions*. Paper presented at the Australia New Zealand Marketing Educator's Conference, Melbourne, December 1-3.

Brennan M, Seymour P & Esslemont D (1993). *Predicting purchase quantities: Further investigation of the Juster Scale*. Paper presented at the New Zealand Marketing Educators' Conference, Lincoln, November 22-24.

Danenberg, N., Sharp, B., & Sharp, A. (1998). *Will they stay or will they go? Improving predictions of brand loyalty*. MRSA National Conference 1998 (14-16 October), Melbourne

- Danenberg, N., & Sharp, B. (1996). *Measuring loyalty in subscription markets using probabilistic estimates of switching behaviour*. Proceedings of ANSMEC Conference, University of Auckland, Auckland, p. 390-401.
- Danenberg N & Sharp B (1996) *Testing Probabilistic Measures of Behaviour as Measures of Customer Loyalty*. Southern Marketing - Theory and Applications, proceedings of the Australian Marketing Educators' Conference (7- 9 February), Adelaide, 704.
- Dawes J (2000). *Further Evidence On The Predictive Accuracy Of The Verbal Probability Scale – The Case Of Household Bill Payments*. Paper presented at the ANZMAC 2000 Visionary Marketing for the 21 st Century: Facing the Challenge, p256
- Dawes J, Riebe E & Giannopoulos A (2000). *The Impact Of Different Scale Anchors On Responses To The Verbal Probability Scale*. Paper presented at the ANZMAC 2000 Visionary Marketing for the 21 st Century: Facing the Challenge, 260
- Esslemont D & Brennan M (1995). *Predicting demand: An approach from marketing*. Paper presented to the Econometrics Conference, Monash University, July 13 - 14.
- Esslemont D, Hini, D & Brennan M (1993). *The use of the Juster Purchase Probability Scale in telephone surveys*. Paper presented at the New Zealand Marketing Educators' Conference, Lincoln, November 22-24.
- Healey B & Hoek J (2000) *Using the web to predict elections: A comparison of survey modes and poll estimates*. Proceedings of the ANZMAC Conference, Griffith University, Gold Coast, Queensland, Australia.
- Hini D & Brennan M (2004). *Developing a method of collecting purchase probability data in telephone interviews* Paper presented at the 24th International Symposium on Forecasting, Sydney, 4-7 July, 2004.
- Hoek J, Esslemont D & Youngs J (1993). *A Comparison Of Finished And Unfinished Television Commercials As Pretesting Stimuli*. Paper presented at the 7th Marketing Educators' Conferences, Lincoln, November 22-24.
- Hoek J & Gendall P (1997). *A constant sum method for determining voting probabilities*. Paper presented to the American Association for Public Opinion Research, Norfolk, Virginia, May 1997.
- Hoek J, Healey B, Gendall P, Brennan M, Kearns Z & Macpherson T. (2000). *Effects of survey modes on pre-election poll estimates*. American Association of Public Opinion Research Conference, May 18-21, Portland, Oregon, USA.
- Hosie J, Hoek J & Gendall P (1993). *Some Effects of Gender Stereo-typing on Women's Attitudes and Behaviour*. Paper presented at the 7th Marketing Educators' Conferences, Lincoln, November 22-24.
- McDonald ZH & Alpert F (2001). *Using the Juster Scale to predict adoption of an innovative product*. Proceedings of the Australian and New Zealand Marketing Academy Conference 2001, Massey University, Auckland New Zealand, 1-8.

- Parackal M & Brennan M (1998). *Obtaining purchase probabilities via a Web based survey: The Juster Scale and the Verbal Probability Scale*. Paper presented at the ANZMAC98 Conference, Dunedin, November 30 - December 3, 1790-1801.
- Parackal M & Brennan M (1998). *A multimedia application to estimate purchase behaviour*. Paper presented at the ANZMAC98 Conference, Dunedin, November 30 - December 3, 2917-2927.
- Riebe E, Rungie C, Danenberg N & Sharp B (1999) *Verifying the Distribution of Probabilistic Scales*. Australian & New Zealand Marketing Academy (29 November - 1 December), Sydney.
- Riebe E (2000). Identifying Variations in the Accuracy of Probabilistic Predictions. Paper presented at ANZMAC 2000 Conference: *Visionary Marketing for the 21 st Century: Facing the Challenge*,1063
- Sharp A, & Riebe E. (2000). *Examining the accuracy of probability scales in social issues research*. Proceedings of the Australian and New Zealand Marketing Academy Conference 2000, Griffith University, Gold Coast, Queensland, Australia.
- U C, Esslemont D & Brennan M (1991). *The effectiveness of the Juster Scale with branded and new products*. Paper presented at the New Zealand Marketing Educators' Conference, Palmerston North, November 14-15.
- Wright M, Sharp A & Sharp B (2000). *Estimating Dirichlet market statistics from survey data – A replication*. Proceedings of the Australian and New Zealand Marketing Academy Conference 2000, Griffith University, Gold Coast, Queensland, Australia.

Theses

- Assendelft EW (1994). *The estimation of the derived demand schedule for raw wool using the Juster Scale*. Unpublished PhD thesis, Department of Marketing, Massey University.
- Chan J (1995). *Improving the Accuracy of Recall Data: The Test of Bounded Recall and Landmark Event*. Unpublished undergraduate honours project, Massey University, Palmerston North, New Zealand.
- Corlett D (1987). *The Accuracy of the Juster Scale as a predictor of consumer behaviour*. Unpublished undergraduate honours project, Massey University, Palmerston North, New Zealand.
- Danenberg NJ (1998) *Predicting Customer Loyalty: A Probabilistic Approach*. Master of Business (Research) Thesis, University of South Australia
- Day D (1987). *An examination of the accuracy of two versions of the Juster Scale for predicting consumer purchase behaviour using self completion questionnaires*. Unpublished undergraduate honours project, Massey University, Palmerston North, New Zealand.

- Dobbs C (1985). *An Application of the Delphi Technique and the Juster Scale as a Means of Forecasting Trends in the Advertising Industry*. Unpublished research report, Massey University, Palmerston North, New Zealand.
- Gan BC (1984). *A test of the accuracy of the Juster Scale as a predictor of purchase behaviour*. Unpublished undergraduate honours report, Massey University, Palmerston North, New Zealand.
- Hamilton-Gibbs D (1989). *Predicting demand for frequently purchased items*. Unpublished undergraduate honours report, Massey University, Palmerston North, New Zealand.
- Hini D (1997). *Developing a Method of Collecting Purchase Probability Data in Telephone Interviews*. Unpublished MBS Thesis, Department of Marketing, Massey University.
- Hoek JA (1996). *Some Effects of Question Wording and Question Administration on the Prediction of Voting Behaviour*. PhD Thesis, Department of Marketing, Massey University.
- Lory DJ (1990). *A new method of predicting voting behaviour*. Unpublished undergraduate honours report, Massey University, Palmerston North, New Zealand.
- MacRae M (2003). *A Meta-Analysis of Juster Scale Prediction Errors*. Unpublished postgraduate research report, Department of Marketing, Massey University.
- Riebe E (2000). *Establishing Boundary Conditions of Probabilistic Scales*. Unpublished Master of Business thesis, University of South Australia.
- Seymour PJ (1993). *The effectiveness of three methods for applying the Juster Scale to estimate the purchase levels of frequently purchased items*. Unpublished undergraduate honours report, Massey University, Palmerston North, New Zealand.
- Smee AK (1997). *Methods of estimating the standard error of Juster Scale estimates*. Unpublished undergraduate honours report, Massey University, Palmerston North, New Zealand.
- U, CHT (1991). *Predicting the Demand for Branded Products using the Juster Scale*. Unpublished undergraduate honours report, Department of Marketing, Massey University.
- Weinberg BD (1993). *An information-acceleration based methodology for developing preproduction forecasts for durable goods: design, development and initial validation*. Doctoral Dissertation, Massachusetts Institute of Technology.
- Wright M (1999). *Estimating the NBD-Dirichlet Market Statistics from a Single Shot Survey*. PhD Thesis, University of South Australia.
- Young A (1990). *An examination of the accuracy of the Juster Scale for predicting the proportion of new product purchases*. Unpublished undergraduate honours report, Massey University, Palmerston North, New Zealand.

Marketing Bulletin, 2004,15, Bibliography

Mike Brennan is a Senior Lecturer in the Department of Marketing at Massey University.

m.brennan@massey.ac.nz